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Cooperative Economic Insect Report

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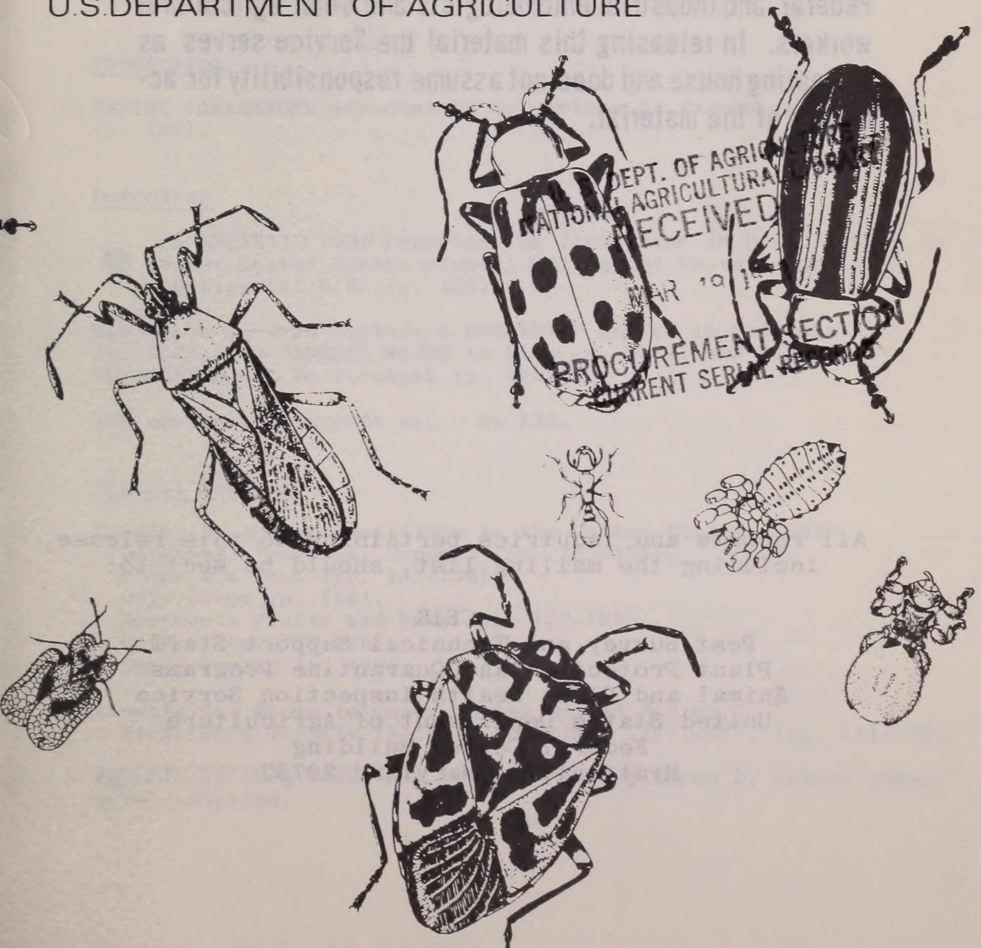

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The Cooperative Economic Insect Report is issued weekly as a service to American Agriculture. Its contents are compiled from information supplied by cooperating State, Federal, and industrial entomologists and other agricultural workers. In releasing this material the Service serves as a clearing house and does not assume responsibility for accuracy of the material.

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Volume 23 March 9, 1973 Number 10

COOPERATIVE ECONOMIC INSECT REPORT

HIGHLIGHTS

Current Conditions

ENGLISH GRAIN APHID flights heavy in central California; could result in heavy infestations of small grains. (p. 127).

EGYPTIAN ALFALFA WEEVIL larval buildup in alfalfa noted in south-central Arizona; conditions ideal for heavy buildup and damage. (p. 127).

Significant SPRING CANKERWORM adult activity observed in Kansas. (p. 128).

Overwintering FACE FLY adults reported for first time in Mississippi. (p. 128).

Prediction

SPRING CANKERWORM expected to be serious in Kansas this spring. (p. 128).

Detection

● An ENCYRTID WASP reported for first time in Hawaii. This is a new United States record, but is not known to occur in continental U.S. (p. 130).

New State records include a DERMESTID BEETLE in California (p. 131), two SPHECID WASPS in Utah (p. 131), and SINUATE PEARTREE BORER in Michigan (p. 128).

For new county records see page 131.

Special Reports

Summary of Insect Conditions in the United States - 1972
  Potatoes, Tomatoes, Peppers (pp. 133-135).
  Beans and Peas (pp. 135-136).
  Cole Crops (p. 136).
  Deciduous Fruits and Nuts (pp. 137-139).
  Citrus (pp. 139-140).
  Small Fruits (p. 140).

Insects Not Known to Occur in the United States.
  Strawberry Tortrix (Acleris comariana (Zeller)). (pp. 141-142).

Reports in this issue are for week ending March 2, unless otherwise indicated.

CONTENTS

Special Insects of Regional Significance........................127

Insects Affecting

- Corn, Sorghum, Sugarcane...127
- Small Grains...............127
- Forage Legumes.............127
- Cole Crops.................127
- Deciduous Fruits and Nuts..128
- Small Fruits...............128
- Ornamentals................128
- Forest and Shade Trees.....128
- Man and Animals............128
- Households and Structures..129
- Miscellaneous Wild Plants..129

Beneficial Insects..129
Hawaii Insect Report..130
Detection...131
Corrections...131
Light Trap Collections..131

Summary of Insect Conditions in the United States - 1972

- Potatoes, Tomatoes, Peppers................................133
- Beans and Peas...135
- Cole Crops...136
- Deciduous Fruits and Nuts..................................137
- Citrus...139
- Small Fruits...140

Insects Not Known to Occur in the United States

Strawberry Tortrix (Acleris comariana (Zeller))...........141

NATIONAL WEATHER SERVICE'S 30-DAY OUTLOOK

MARCH 1973

The National Weather Service's 30-day outlook for March is for temperatures to average above seasonal normals across the Nation except for near to below normal in the South. Precipitation is expected to exceed normal along the north Pacific coast. Subnormal totals are indicated for the central intermountain region as well as the eastern half of the Nation except for near normal along the northern border. Elsewhere near normal precipitation is in prospect.

Weather forecast given here is based on the official 30-day "Resume and Outlook" published twice a month by the National Weather Service. You can subscribe through the Superintendent of Documents, Washington, D.C. 20250. Price $5.00 a year.

WEATHER OF THE WEEK ENDING MARCH 5

Reprinted from Weekly Weather and Crop Bulletin supplied by Environmental Data Service, NOAA.

PRECIPITATION: A storm centered off the Pacific coast early in the week dumped light to heavy rain along the coast from Washington to California. Snow fell in nearby hills and mountains. Mount Wilson, California, received 3.05 inches of rain in the 24-hour period ending Wednesday evening. In some places along the

Weather of the week continued on page 132.

SPECIAL INSECTS OF REGIONAL SIGNIFICANCE

GREENBUG (Schizaphis graminum) - TEXAS - Very light, ranged 1-6 per drilled row foot of small grains in Wilbarger, Foard, Childress, Wichita, Archer, Knox, Haskell, and Throckmorton Counties. Beneficials also present. (Boring). KANSAS - One winged adult noted in wheat field in Labette County. None seen in second field in county and none in wheat checked in 2 Montgomery County fields or in Cherokee County field. (Bell).

CORN, SORGHUM, SUGARCANE

SOUTHWESTERN CORN BORER (Diatraea grandiosella) - OKLAHOMA - Overwintered larvae averaged 2, 4, and 18 per 100 stalks in 3 cornfields checked in Texas County. Stalk infestations had been 72, 26, and 58 percent,respectively, giving survival percentages of 3, 16, and 31. (Okla. Coop. Sur.).

SMALL GRAINS

WINTER GRAIN MITE (Penthaleus major) - TEXAS - Ranged 2-4 per row foot of grain in Archer, Wichita, and Foard Counties. Populations decreased past 3 weeks in Rolling Plains. (Boring). OKLAHOMA - Seen in most wheat fields in Kingfisher County; ranged 1-4 per linear foot except in one field where counts averaged 55 per linear foot. Light in some Logan County fields. (Okla. Coop. Sur.).

ENGLISH GRAIN APHID (Macrosiphum avenae) - CALIFORNIA - Alates heavy in flight at Sacramento, Sacramento County. Warm weather following rains triggered mass emergence. With favorable weather, flight could result in heavy infestations. (Cal. Coop. Rpt.).

FORAGE LEGUMES

ALFALFA WEEVIL (Hypera postica) - OKLAHOMA - Average counts per square foot by county as follows: Stephens - eggs 225, larvae 20; Payne - eggs 258, larvae 1; Dewey - eggs 16; Harper - eggs 13. Counts made February 21-24. (Okla. Coop. Sur.). MISSOURI - Winter egg counts ranged 3-8.5 per square foot in northwest area. Infestation recent in this area so no heavy buildup expected. Adult counts ranged 2-8 per 10 sweeps in south-central area. (Munson). TENNESSEE - Conditions conducive for larval emergence in alfalfa across State. Checks should begin soon to determine when economic levels reached. (Gordon).

EGYPTIAN ALFALFA WEEVIL (Hypera brunneipennis) - ARIZONA - Larval buildup on alfalfa noted on borders of 2 fields in Maricopa County. Conditions ideal for heavy larval buildup and resulting feeding damage. (Ariz. Coop. Sur.).

CLOVER ROOT CURCULIO (Sitona hispidulus) - VIRGINIA - Collected in Charlotte County by R. Perry December 1, 1970. Determined by R.E. Warner. This is a new county record. (Allen).

COLE CROPS

GREEN PEACH APHID (Myzus persicae) - ARIZONA - Winged adults, flying in from weeds, averaged 6 per lettuce plant in 3 Salt River Valley, Maricopa County, fields. Treatment applied. Several treatments necessary in Yuma County with general buildup noted. (Ariz. Coop. Sur.).

BEET ARMYWORM (Spodoptera exigua) - NORTH CAROLINA - Collected on cabbage November 4, 1972, near Wagram, Scotland County, by D.L. Stephan and September 20, 1972, near Weeksville, Pasquotank County, by K.A. Sorensen. Both determined by D.L. Stephan. These are new county records. (Hunt).

DECIDUOUS FRUITS AND NUTS

SINUATE PEARTREE BORER (Agrilus sinuatus) - MICHIGAN - Single adult taken on sticky trap in Manistee County July 24, 1972. Collected by T. Eiber. Determined by S.G. Wellso. This is a new State record. (Sauer).

SMALL FRUITS

A LEAFHOPPER (Scaphytopius magdalensis) - NORTH CAROLINA - Collected on cultivated blueberries near Charity, Duplin County, July 27, 1972, by T.N. Hunt. Determined by D.A. Young. Taken on same host August 15, 1972, near White Lake, Bladen County. Collected and determined by T.N. Hunt. These are new county records. (Hunt).

ORNAMENTALS

A PIT SCALE (Cerococcus kalmiae) - VIRGINIA - Overwintering eggs under dead females on heavily infested azalea in Norfolk collected February 15 by D.E. Greenwood. Determined by P.L. Lambdin. This is second record of species in State. (Allen).

COTTONYCUSHION SCALE (Icerya purchasi) - TEXAS - Heavy on Photinia at College Station, Brazos County. (Green).

FOREST AND SHADE TREES

SPRING CANKERWORM (Paleacrita vernata) - KANSAS - Expected to be serious problem in 1973 on some elms, hackberries, and certain other trees in some eastern area cities during spring. Significant moth activity in Manhattan, Riley County, noted at lights and on trunks of elms and hackberries night of March 1. Males ranged 0-30 per tree on lower portions of trunks. High count of 4 females per trunk also noted. Examinations of fresh sticky bands on some elms in Topeka, Shawnee County, March 2 revealed significant moth activity. Up to 150 males and 30 females found in sticky bands on some larger elms. (Bell).

MAN AND ANIMALS

SCREWWORM (Cochliomyia hominivorax) - During the period February 18-24 there were 3 confirmed cases reported in the continental U.S., all in Texas. Total of 57 confirmed cases reported from Mexico. Number of sterile flies released in U.S. totaled 67,742,000 as follows: Texas 64,802,000; Arizona 2,940,000. Total of 72,390,000 sterile flies released in Mexico. (Anim. Health).

FACE FLY (Musca autumnalis) - MISSISSIPPI - Overwintering adults recorded for first time in State when flies found around shed in Chickasaw County. No flies observed on nearby cattle. (Robinson).
See corrections p. 131.

HORN FLY (Haematobia irritans) - FLORIDA - Populations light, ranged 50-100 adults per beef animal in southern area. Normal for time of year. (Fla. Coop. Sur.).

CATTLE GRUBS (Hypoderma spp.) - KENTUCKY - Larvae averaged 2.6 per head on Holstein dairy cows of various ages in Fayette County. About two-thirds of infestation H. lineatum (common cattle grub) and remainder H. bovis (northern cattle grub). (Barnett). TEXAS - H. lineatum adults active in Travis County during warm days. (Cole).

CATTLE LICE - OKLAHOMA - Lice, mainly Haematopinus eurysternus (shortnosed cattle louse), reported heavy on cattle in Major, Payne, Hughes, and Comanche Counties. Light in Cimarron County. (Okla. Coop. Sur.).

HOG LOUSE (Haematopinus suis) - OKLAHOMA - Heavy on hogs in Comanche County. (Okla. Coop. Sur.).

HOUSEHOLDS AND STRUCTURES

GREENHOUSE STONE CRICKET (Tachycines asynamorus) - MICHIGAN - Adult collected December 5, 1972, by P. Steila in home in Detroit, Wayne County. Determined by M. Hanna and confirmed by I. Cantrall. This is a new county record. (Sauer).

A CARPENTER ANT (Camponotus rasilis) - TEXAS - Heavy and damaged home at San Antonio, Bexar County. (Gardener).

MISCELLANEOUS WILD PLANTS

A BILLBUG (Sphenophorus minimus) - VIRGINIA - Collected on Carduus nutans (bristlethistle) by R. Perry in Russell County November 10, 1970. Determined by R.E. Warner. This is a new county record. (Allen).

BENEFICIAL INSECTS

HONEY BEE (Apis mellifera) - MARYLAND - Colonies emerged from winter with low honey stores; condition generally weak. Deterioration should end next few weeks with first nectar flow of maple and elm. Some maple nectar available now. Bees should replenish depleted stores rapidly with approaching mild weather. (U. Md., Ent. Dept.).

HAWAII INSECT REPORT

New State record - Specimens of an ENCYRTID WASP (Cheiloneuromyia javensis) emerged from several lots of Coccus acuminatus (a soft scale) found infesting foliage of Singapore plumeria trees at various localities on Oahu. Earliest collection dated November 1965. Determined by B.D. Burks. (Beardsley). This is a new United States record but is not known to occur in continental U.S. (PPQ).

Turf and Pasture - GRASS WEBWORM (Herpetogramma licarsisalis) light on experimental hybrid Bermuda grass planting at Waimanalo, Oahu; larvae ranged 4-8 (average 5) per square foot. Light numbers of adults of Sphenophorus venatus vestitus (a billbug) and larvae of Spodoptera mauritia (lawn armyworm) and Hylephila phyleus (a skipper) also noted. (Mitchell).

General Vegetables - Nymphs and adults of a TREEHOPPER (Antianthe expansa) moderate in yard planting of eggplant at Whitmore Village, Oahu, nil in adjacent commercial planting. Nymphs light in yard planting of tomatoes at Lanikai. (Davis, Kawamura). SWEETPOTATO LEAFMINER (Bedellia orchilella) heavy in young sweetpotato planting at Wailua, Kauai. About 75 percent of leaves with larval mines affecting 10-80 percent of leaf surfaces. (Sugawa). All stages of IMPORTED CABBAGEWORM (Pieris rapae) and DIAMONDBACK MOTH (Plutella xylostella) heavy, causing near complete defoliation in small yard planting of cauliflower at Hilo, Hawaii. About 10 percent of P. xylostella parasitized by Diadegma insularis (an ichneumon wasp); about 5 percent of P. rapae parasitized by Apanteles sp. (a braconid wasp). (Matayoshi). All stages of GREENHOUSE WHITEFLY (Trialeurodes vaporariorum) moderate to heavy in eggplant at Whitmore Village, Oahu; TOBACCO FLEA BEETLE (Epitrix hirtipennis) trace, "shot holes" light. (Kawamura).

Fruits and Nuts - BROAD MITE (Polyphagotarsonemus latus) trace in 21 acres of papaya seedlings at Makaha, Oahu; damage negligible. (Kawamura). BLACK CITRUS APHID (Toxoptera aurantii) infestation variable in large commercial macadamia nut planting at Ka'u, Hawaii; 80-100 percent of floral racemes infested with nymphs and adults. About 55 (range 5-95) percent of aphids parasitized by Lysiphlebius testaceipes (a braconid wasp). (Matayoshi). NEW GUINEA SUGARCANE WEEVIL (Rhabdoscelus obscurus), TAHITIAN COCONUT WEEVIL (Diocalandra taitensis), and COCONUT SCALE (Aspidiotus destructor) trace to light on 12 coconut trees at Kailua, Oahu; 5 trees with moderate to heavy D. taitensis exit holes. (Kahale, Otsuka). Increased sightings of a SWALLOWTAIL BUTTERFLY (Papilio xuthus) throughout Oahu during past few weeks indicates end of diapause and coincides with cycle established during first year of observation in State. First specimen of P. xuthus taken at Salt Lake, Oahu, during April 1971. (Kawamura).

DETECTION

New United States Record - AN ENCYRTID WASP (*Cheiloneuromyia javensis*) - HAWAII - Oahu (p. 130).

New State Records - A DERMESTID BEETLE (*Attagenus faciatus*) - CALIFORNIA - Collected from experimental dermestid trap at milling warehouse in Hanford, Kings County, November 22, 1972, by A. Gilbert and L. Bookout. Determined by F. Andrews. This species was formerly known as *A. gloriosae*. (Cal. Coop. Rpt.).

SPHECID WASPS - UTAH - *Steniolia duplicata* collected at Santa Clara, Washington County, June 21, 1950. *Glenosticta scitula* collected in Dixie State Park, Washington County (no date available). Both collected by G.F. Knowlton. Determined by J.E. Gilaspy. (Knowlton).

SINUATE PEARTREE BORER (*Agrilus sinuatus*) - MICHIGAN - Manistee County. (p. 128).

New County Records - BEET ARMYWORM (*Spodoptera exigua*) NORTH CAROLINA - Scotland, Pasquotank (p. 128). A BILLBUG (*Sphenophorus minimus*) VIRGINIA - Russell (p. 129). CLOVER ROOT CURCULIO (*Sitona hispidulus*) VIRGINIA - Charlotte (p. 127). GREENHOUSE STONE CRICKET (*Tachycines asynamorus*) MICHIGAN - Wayne (p. 129). A LEAFHOPPER (*Scaphytopius magdalensis*) NORTH CAROLINA - Duplin, Bladen (p. 128).

CORRECTIONS

CEIR 23(8):86 - MAN AND ANIMALS - CATTLE LICE - MISSISSIPPI - Infestations of Solenoptes ... should read Infestations of Solenopotes ...

CEIR 23(8):97 - CONCHUELA (Chlorochora ligata) should read (Chlorochroa ligata).

CEIR 23(9):110 - FACE FLY (Musca autumnalis) - MISSISSIPPI - Second sentence should read: "Overwintering adults have *never* been located in State." See page 128, this issue for first record of overwintering adults in Mississippi. (PPQ).

CEIR 23(9):111 - DETECTION - New County and Island Records - AN ICHNEUMON WASP (Bathyplectis ... should read (Bathyplectes ...

LIGHT TRAP COLLECTIONS

FLORIDA - Gainesville, 2/23-3/1, BL - BLACK CUTWORM (*Agrotis ipsilon*) 2, GRANULATE CUTWORM (*Feltia subterranea*) 6.

Weather of the week continued from page 126.

coast, rain was accompanied by gales. Winds gusted to 45 m.p.h. at Crescent City, California, Thursday morning. By Thursday, precipitation in the West had spread eastward, dropping rain along the coast and snow eastward across the northern Great Basin to the northern Rocky Mountains. Moist air covered most of mid-America last week. Fog prevailed over the Great Plains and parts of the Mississippi River Valley early in the week. Freezing drizzle fell over spots in the northern Great Plains on one or two days. Two inches of snow fell at Sault Sainte Marie Wednesday bringing the depth on the ground to 16 inches. Thundershowers developed in the central and southern Great Plains. Some large hail fell in the Waco, Texas, area. A storm moved across Georgia and the Carolinas early in the week and continued northeastward along the Atlantic coast. It brought rain from the Carolinas to Virginia and mixtures of rain, snow, and sleet from the Virginias to New England. Weekend precipitation included rain along the Pacific coast, light snow over the western edge of the central Great Plains, and rain or drizzle over the eastern half of the Nation. Thunderstorms spotted the lower Mississippi River Valley. Fog and clouds covered much of the area from the Great Lakes to the Gulf of Mexico and advanced eastward to the Atlantic Ocean by late Sunday or early Monday. Freezing drizzle slicked roads in northern Maine. A late winter storm moved through Nevada, Utah, and northern Arizona late Sunday. It left snow amounts ranging from 2 inches to over a foot, before moving eastward across the Rocky Mountains to the Great Plains. Several inches of snow fell in eastern Colorado, western Nebraska, and western Kansas.

TEMPERATURE: On Monday, February 26, a cold High was centered north of Lake Superior with a high pressure ridge extending southward across the central Great Plains to northern Texas. Cold air pushed southward east of the ridge. Subzero weather occurred in northern New England and northeastern New York. Houlton, Maine, registered 24 degrees below zero Tuesday morning. In spite of sunny skies, temperatures hovered near zero in northern Maine Tuesday afternoon. Houlton recorded 4 degrees above zero. Early morning temperatures remained above 60 degrees in southern Florida. Mild temperatures pushed northward across the southern and central Great Plains at midweek. Hill City, Kansas, registered 62 degrees and Philip, South Dakota, 63 degrees Wednesday afternoon. Temperatures along the Canadian border ranged from 32 degrees at Williston, North Dakota, to 16 degrees at Caribou, Maine, Wednesday afternoon. The warmest weather occurred along the Atlantic coast of Florida early in the week and in southern Texas at midweek when afternoon maximums reached the 80's. In the Far West, afternoon temperatures ranged from the 50's in Washington to the upper 70's in southern California. The weekend brought a warming trend to much of the Nation. Montana and western North Dakota warmed to the 50's and southern Texas warmed to the 80's Saturday afternoon. Almost the entire Nation averaged warmer than normal. In some sections, the weather last week was the warmest since last fall. Much of the northern Great Plains averaged 10 to 20 degrees warmer than normal.

SUMMARY OF INSECT CONDITIONS IN THE UNITED STATES - 1972

(Continued from page 123)

POTATOES, TOMATOES, PEPPERS

Highlights: COLORADO POTATO BEETLE was more common than usual on potatoes in Maine and northern Utah. PEPPER WEEVIL infested peppers on the east coast of Florida for the first time since 1945. GREEN PEACH APHID was heavy on fall potatoes in Virginia. This aphid was very heavy on potatoes and heavier than usual on tomatoes in Florida than for the past two years. Controls for this pest were necessary on most potatoes in the Arkansas Valley of Colorado and damage was very serious in the northern Willamette Valley of Oregon.

COLORADO POTATO BEETLE (*Leptinotarsa decemlineata*) overwintered adults and associated damage on potatoes were more common in all areas of MAINE by June 7 than in many years. Several fields were severely damaged before controls were applied. Adults were abundant in several potato fields in Kent County, DELAWARE, during mid-May and in some potato and tomato fields throughout the State in late May and June. Overwintered Colorado potato beetle adults began ovipositing in MARYLAND the last week of May. Second and third-instar larvae were light (1-2 per 10 yards of row) in several fields in Wicomico and Somerset Counties. Most first and second generation field populations on potatoes and tomatoes were kept below economic levels with scheduled control programs. Second-generation adults failed to reach economic levels in late July and August due to scheduled sprays. Control costs for this pest in Maryland during 1972 were estimated at $80,000.

Colorado potato beetle larvae and adults began to appear in potato fields of Larimer and Weld Counties, COLORADO, in mid-June. Counts in July averaged 6 larvae and adults per 10 sweeps in scattered potato fields in the area. Chemical controls were necessary in several fields. In UTAH, damage by this leaf beetle was extensive and above normal to potato and tomato foliage in infested areas of the northern part of the State. Much control was applied.

PEPPER WEEVIL (*Anthonomus eugenii*) appeared for the first time on the east coast of FLORIDA during March 1972. The infestation subsequently extended from northern Broward County, north across Palm Beach County, and into Martin County. In the east coast area this weevil was found inland west of Loxahatchee, Palm Beach County. Fruit drop of bell peppers was serious on some farms. The rapid spread of this pest in the east coast area was probably due to the practice of dumping waste fruit from packing areas, as well as the unusually warm winter which was conducive to rapid reproduction. Heavy populations (1-3 per fruit) built up during spring at Immokalee, Collier County, and at Dover, Hillsborough County. These are the first reports of pepper weevil in Florida since 1945.

EUROPEAN CORN BORER (*Ostrinia nubilalis*) infestations in untreated sweet peppers averaged approximately 25 percent in most areas of DELAWARE during late August and September. By mid-June, infestations in unsprayed potatoes ranged up to 5 percent in several fields totaling 200 acres in Somerset County, MARYLAND. Populations did not reach economic levels before harvest in late June and early July. Scheduled treatments for *Leptinotarsa decemlineata*

(Colorado potato beetle) suppressed European corn borer populations in most fields. About 700 acres of sweet peppers required 1-3 treatments in Wicomico, Dorchester, Somerset, and Worcester Counties to insure economic yields of undamaged fruits.

TOMATO FRUITWORM (*Heliothis zea*) was the most important pest of the 8,500 acres of commercial tomatoes and in home gardens in ALABAMA. All commercial fields received 15-30 control applications per acre during the 1972 season. BEET ARMYWORM (*Spodoptera exigua*) caused foliar damage to tomatoes during fall at Bradenton, Manatee County, FLORIDA, where larvae ranged 10-20 per 20 plants. A heavy infestation also developed on tomato plots at Fort Pierce in St. Lucie County.

TOMATO PINWORM (*Keiferia lycopersicella*) was moderate (1-5 per plant) on tomatoes at Bradenton, Manatee County, FLORIDA, during spring and fall. This pest severely damaged tomato plants in the Tampa area of Hillsborough County where control was difficult. Several light to heavy infestations of tomato pinworm were reported on tomatoes at scattered locations in TEXAS. However, damage was not as extensive as had been reported in past years.

GREEN PEACH APHID (*Myzus persicae*) was first noted on peppers during late June in Kent and Sussex Counties, DELAWARE, when infestations were light. Numbers continued to increase as the season progressed with counts in early August averaging about 400 per 100 leaves. Counts peaked at 1,100 per 100 leaves in late August and early September. Green peach aphid was kept under control in most MARYLAND potato and tomato fields for the second consecutive year. Most growers in Worcester and Somerset Counties applied preplant treatments to potatoes which held off possible aphid buildups in June. Infestations on peppers were light to moderate in Wicomico County. By late August, infestations in unsprayed pepper fields ranged 20-50 percent. Heavy infestations developed in VIRGINIA on fall potatoes during the first weeks of October when controls were applied. Green peach aphid populations were heavy on potatoes during April and May at Hastings, St. Johns County, FLORIDA. This was the second year of very heavy infestations. Recommended control measures were ineffective.

In the Homestead area of Dade County, Florida, green peach aphid was more abundant than usual on tomatoes the past two fall seasons and more prevalent during spring 1972 than 1971. This aphid is the most important pest of tomatoes and potatoes in the Homestead area. Green peach aphid appeared on pepper plantings in the Palm Beach County area of Florida during October and increased the next two months. Colonization was heavy during December, and a high incidence of pepper virus diseases followed aphid flights.

Movement of green peach aphid into late potatoes was observed the first part of July in Weld County, COLORADO. By July 20, populations ranged 1-20 per leaf. In the Arkansas Valley, populations reached 30-50 per leaf. Controls were necessary in most potato fields. Green peach aphid was heavy in 100+ acres of potatoes in Lyon County, NEVADA. Plants were severely damaged and controls applied. Movement of this aphid into Malheur County, OREGON, potatoes began in late May. Heavy numbers continued to be trapped in the Newell Heights and Mitchell Butte areas until mid-August. Sporadic population buildups occurred in all potato-growing sections of Oregon. Leaf roll damage was very serious in the northern Willamette Valley in Washington, Clackamas, and Multnomah Counties, with counts ranging up to 600 aphids per 25 bottom leaves in early September.

POTATO SCAB GNAT (*Pnyxia scabiei*) was collected on potatoes at Ellensburg, Kittitas County, WASHINGTON, January 27, 1972, by B.J. Landis. This is a new county record. Infestations were also noted at Pasco, Franklin County, in August and in Benton County in September. These were also new county records reported during the 1972 season.

BEANS AND PEAS

Highlights: MEXICAN BEAN BEETLE was kept below economic levels in Maryland by scheduled sprays. This beetle was serious on beans in Alabama and necessitated controls in Nebraska and Utah. PEA LEAF WEEVIL damaged peas for the first time in Nez Perce County, Idaho.

MEXICAN BEAN BEETLE (*Epilachna varivestis*) adults were present on snap beans throughout Kent and Sussex County, DELAWARE, beginning in late May and early June. All stages were common on this crop by mid-June, with heaviest injury noted in July on snap and lima beans. Adults ranged 5-10 per 10 row feet of snap beans in Dorchester and Wicomico Counties, MARYLAND, in June. Controls were applied to several hundred acres for early season adult beetle control. Population levels for July, August, and September were maintained below economic thresholds by scheduled sprays. Mexican bean beetle was a serious and damaging pest of lima and pole beans throughout ALABAMA, and to a lesser extent field peas. Populations were heavy and about the same as the past 5 years. Controls were applied to several fields of beans in Scotts Bluff County, NEBRASKA. Larvae ranged 10-15 per plant with 20-50 percent of plants infested in August. Damage to beans by Mexican bean beetle was common with control generally necessary in infested areas of UTAH.

BEAN LEAF BEETLE (*Cerotoma trifurcata*) adult damage to beans in MARYLAND was below economic levels statewide. Only 200 acres of beans in Caroline County required controls. PEA LEAF WEEVIL (*Sitona lineatus*) adults damaged peas and to some extent alfalfa, clover, and lentils throughout Latah County, IDAHO, and for the first time peas in some areas of Nez Perce County. Until green peas emerged, feeding damage was restricted to alfalfa and other legumes. Some pea plants were consumed as they emerged while others outgrew weevil feeding. Populations varied greatly ranging from 5 to over 35 per square foot during the period June 8-14.

LESSER CORNSTALK BORER (*Elasmopalpus lignosellus*) caused severe damage (up to 100 percent) to blackeye peas in Kern County, CALIFORNIA. Larvae of this pyralid moth damaged fall planted field peas in the Lake City area of Columbia County, FLORIDA, during September.

ALFALFA CATERPILLAR (*Colias eurytheme*) infestations in pea fields were light in MARYLAND. However, these light infestations caused contamination problems in the canning of peas. Full-grown larvae and pupae passed through the processing screens and were packed in the cans. This situation only involved an estimated 200 acres on the Eastern Shore of Maryland. CABBAGE LOOPER (Trichoplusia ni) was the most serious pest of beans in KENTUCKY, however, damage was far less than that of 1971. Only scattered "hot spots" occurred in 525 acres of snap beans in Wayne County. WESTERN YELLOWSTRIPED ARMYWORM (Spodoptera praefica) damaging populations occurred about July 19 or 14 days later than 1971 in IDAHO. Over 1,500 acres of lentils and peas in Latah and Nez Perce Counties were treated.

COLE CROPS

Highlights: IMPORTED CABBAGEWORM damaged commercial cabbage in Maryland and on the Eastern Shore of Virginia, but controls reduced this damage near the end of the season. CABBAGE LOOPER damaged cole crops in Maryland, but timely controls prevented serious economic damage. This pest required controls on the fall cabbage crop in North Carolina.

IMPORTED CABBAGEWORM (Pieris rapae) larval damage ranged 90-100 percent in all unsprayed commercial and garden plantings of cabbage statewide in MARYLAND. This pest was brought under control in commercial acreages with scheduled spray programs. Larvae caused much damage to cabbage throughout Accomac and Northampton Counties, VIRGINIA, during the first week in June. By August 18, very heavy adult populations were present in cabbage fields on the Eastern Shore but due to insecticidal programs damage was light. Imported cabbageworm became heavy for the first time in several years in FLORIDA, with populations being heaviest near the end of the season in April and May. This pest caused heavy damage to cabbage and required 4 or more pesticide applications. Polyhedrosis virus eliminated 50 percent of the larval population by the end of the season but this was too late for practical value. This pierid butterfly was one of the most destructive larvae on commercial and home plantings of cabbage, collards, and other cole crops throughout ALABAMA.

CABBAGE LOOPER (Trichoplusia ni) caused moderate to heavy damage to unsprayed cabbage, broccoli, and kale in Wicomico, Baltimore, Carroll, and Prince Georges Counties, MARYLAND, during August and September. Timely controls in most commercial acreages prevented economic damage to these crops. Controls for this pest were necessary on the fall cabbage crop during September in northeastern NORTH CAROLINA, particularly in Pasquotank and Hyde Counties. Cabbage looper infestations were heavy on cabbage during fall and spring in the Hastings area of St. Johns County, FLORIDA. Growers were unable to produce marketable cabbage without 6-8 regular pesticide applications per season. Cabbage looper was the most damaging insect on cabbage in the Everglades area of the State.

DIAMONDBACK MOTH (Plutella xylostella) damaged cole crops in isolated areas throughout ALABAMA, but was most important on turnips, mustard, cabbage, and collards. Larvae of diamondback moth ranged 12-22 per plant and caused severe damage to several acres of collards in Charleston County, SOUTH CAROLINA, in late January. This pest also caused scattered damage to collards in Clarendon County in June.

DECIDUOUS FRUITS AND NUTS

Highlights: CODLING MOTH first-brood flight was delayed in Colorado by cool weather. TARNISHED PLANT BUG caused heavier than usual damage to peaches in Virginia. EUROPEAN RED MITE was the most important pest of apples in North Carolina. Several NUT PESTS were of concern on nut crops in some States.

The first CODLING MOTH (*Laspeyresia pomonella*) adults of the season in MASSACHUSETTS were found in pheromone traps in Middlesex County May 18 and in Hampshire County May 30. On June 7, 30 moths per trap were collected in 2 days in an abandoned Hampshire County orchard. Through June, about 20 per trap per week were collected in abandoned orchards but fewer than 5 per trap per week were collected in July and August. In treated orchards there were never more than 4 per trap per week collected. In abandoned orchards 25-50 percent of all apples were infested. The first moths of the season in COLORADO were taken in apple orchards April 5 in Mesa County. Cool weather delayed first-brood flight. The main flight occurred April 22-25 with moth catches of up to 40 per day in pheromone traps. First cover sprays were posted for May 5 in Mesa County and for May 20 in Delta, Montrose, and Garfield Counties. The second-brood flight took place the last week of July with moth catches of 20-50 per day. Codling moth larvae were found infesting sweet cherries in an unsprayed orchard at Sunnyside, Yakima County, WASHINGTON. Extensive injury and second-brood entries were noted by July 15.

PLUM CURCULIO (*Conotrachelus nenuphar*) feeding and oviposition damage were found on virtually 100 percent of the apples in abandoned orchard in MASSACHUSETTS, while damage to treated orchards was virtually zero. The first beetles appeared on apples in central MAINE by May 26 and first cutting of fruit was observed about 7 days later. Populations appeared lower than usual, but their period of activity was rather protracted due to considerable periods of cool weather, which resulted in somewhat more fruit injury than usual.

First APPLE MAGGOT (*Rhagoletis pomonella*) adults of the season in MASSACHUSETTS were collected in attractant traps June 21 in Hampshire and Worcester Counties. By July 6, as many as 75 per trap per week were being collected in abandoned apple orchards of Middlesex and Worcester Counties. In Hampshire County, the peak of 37 per trap per week was reached the first week of August. In treated orchards never more than 2 per trap per week were collected. Adults were still flying in unsprayed orchards at the end of August.

WESTERN CHERRY FRUIT FLY (*Rhagoletis indifferens*) fly emergence was heavy during week of June 1 in most of the Yakima County of WASHINGTON cherry area. Peak emergence for the lower Yakima Valley occurred the week of June 14.

APPLE APHID (*Aphis pomi*) overwintering eggs began hatching by the end of April in Hampshire County, MASSACHUSETTS. Populations slowly built to a peak in late July with 369 aphids per terminal on Red Delicious and 177 per terminal on McIntosh trees which had been sprayed with fungicides only. For unknown reasons the aphid population was reduced to zero in 2 weeks. Predation by syrphid fly larvae was possibly responsible. Aphid populations on trees with alternate row spraying peaked in late July with 241 aphids per terminal on Red Delicious and 30 per terminal on McIntosh. On regularly sprayed trees the aphid populations never exceeded 8 per terminal.

GREEN PEACH APHID (Myzus persicae) egg hatch was nearly complete in peach orchards of Mesa County, COLORADO, the latter part of March. By April, colonies were well established on trees. Alate forms were noted on May 22 with migration from peach to summer hosts noted on May 26. Green peach aphid caused extensive peach leaf curling during spring in orchards in Washington, Grand, San Juan, Salt Lake, and Utah Counties, UTAH.

PEAR PSYLLA (Psylla pyricola) is now present in Box Elder, Cache, Davis, Weber, and Salt Lake Counties, UTAH. The freeze of fruit crops allowed this pest to build up in Cache County, with possible increased dispersal due to failure to spray orchards.

TARNISHED PLANT BUG (Lygus lineolaris) was very active in MAINE on apple just prior to bloom and after petal fall. This plant bug caused much injury to fruit where control measures were lacking. Tarnished plant bug caused heavier damage to peaches in VIRGINIA in 1972 than it has the past several years. Damage ranged from 5 to 17 percent of the fruit in some orchards.

EUROPEAN RED MITE (Panonychus ulmi) overwintering eggs began hatching on apple trees by the end of April in Hampshire County, MASSACHUSETTS. On trees which were sprayed only with fungicides, mite populations began increasing in mid-July and peaked in mid-August with 126 eggs and 51 mites per leaf on Red Delicious and 43 eggs and 19 mites per leaf on McIntosh trees. In treated orchards mites were a problem only in a few isolated instances. In Franklin and Hampden Counties there was some buildup in late August. In OHIO, overwintering egg counts per one-half inch of roughened apple stem by county were as follows: Clermont 100-125; Pickaway 10-20; Meigo, Auglaize, and Hardin 5-25. First hatch occurred in the central areas April 28 and was completed statewide by mid-May. Up to 90 mites per leaf were observed on susceptable varieties statewide July 19-24. European red mite was the most important pest of NORTH CAROLINA apple plantings. Overwintering eggs hatched around full pink with peak hatch occurring about full bloom. The number of commercial orchards reaching economic threshold levels was generally greater than during the 1971 growing season.

PECAN WEEVIL (Curculio caryae) emergence from pecans in MISSISSIPPI began in mid-August and peaked in mid-September. Infestations were heavy in Lowndes, Newton, and Hinds Counties. Pecan weevil adults began emerging in OKLAHOMA during mid-July in Payne County, but heavy emergence did not occur until the end of August and the first week of September. Infestations were moderate to heavy in most areas of Oklahoma. In NEW MEXICO, pecans infested with pecan weevil larvae were found in retail outlets at Las Cruces, Dona Ana County in January. All wholesale and retail outlets in the State were checked and over 3,000 pounds of infested pecans were seized. These were returned to out-of-State distributors or destroyed. A total of 9 weevils was collected in traps at Tularosa, Otero County, in fall 1972.

Apparently *C. caryae* has not spread beyond the initial infestation in Otero County where it was found in 1970. Plans are being made to continue the treatment of suspect trees in an attempt to erradicate this pest from New Mexico.

WALNUT CATERPILLAR (*Datana integerrima*) caused heavy defoliation to pecan and walnut trees in many eastern counties of OKLAHOMA from mid-June to mid-July (first generation) and mid-September to mid-October (second generation).

FALL WEBWORM (*Hyphantria cunea*) adults began ovipositing in OKLAHOMA the last week of May. Two generations of larvae caused heavy damage to pecan, walnut, hickory, and persimmon trees over most of the eastern two-thirds of the State from mid-June to mid-September. Partial defoliation of many pecan trees by this arctiid in Dona Ana, Sierra, Eddy, and Chaves Counties, NEW MEXICO, occurred in October. Controls were applied on commercial plantings.

First spring-brood pupae of PECAN NUT CASEBEARER (*Acrobasis caryae*) in TEXAS were observed in mid-April in Maverick County. Emergence of spring-brood adults was essentially completed across the State by late May. Much damage occurred when control measures were not applied. The first eggs of the season were found in Love County, OKLAHOMA, May 15. First-generation damage was variable in all areas of the State with reports ranging from 16 to 76 percent of the nut clusters damaged.

BLACK PECAN APHID (*Tinocallis caryaefoliae*) was very heavy in FLORIDA. This pest caused severe defoliation in unsprayed pecan trees, and moderate defoliation and leaf drop in sprayed trees. The unusual abundance in the Monticello area correlated with a 2-month drought in August and September.

CITRUS

Highlights: CITRUS RED MITE was at the lowest levels in 21 years of record on Florida citrus during the cool and warm months, but was a major pest of citrus in California. BLACK SCALE on citrus in Florida reached the highest levels in 21 years of sampling in that State.

CITRUS RUST MITE (*Phyllocoptruta oleivora*) continued as the most damaging arthropod pest of citrus in FLORIDA. Populations were above normal in a majority of groves for most of the year. Populations peaked in midsummer.

TEXAS CITRUS MITE (*Eutetranychus banksi*) populations were very light on citrus in FLORIDA early in the year but reached a high level, slightly above average, in July.

CITRUS RED MITE (*Panonychus citri*) was much below normal for most of the year on FLORIDA citrus. Levels for many of the cool and warm months were the lowest in 21 years of sampling in the State. Citrus red mite continued as a major pest of citrus in CALIFORNIA.

CITRUS SNOW SCALE (*Unaspis citri*) was probably the second most serious arthropod pest of citrus in FLORIDA. This armored scale has now spread to 38 percent of the citrus groves, and most of these infestations will continue to be important. This is the only scale insect of citrus in the State that is likely to require control measures during winter.

CALIFORNIA RED SCALE (*Aonidiella aurantii*) required control on citrus in some locations in CALIFORNIA. Parasite and/or predator activity exerted much control on this armored scale.

BLACK SCALE (*Saissetia oleae*) was abnormally widespread and heavier on FLORIDA citrus, with populations reaching the highest levels in 21 years of record in the State. Populations peaked in early July.

CITRUS WHITEFLY (*Dialeurodes citri*) was severe and damaged dooryard citrus in Sacramento, Sacramento County, in San Diego, San Diego County, and in Santa Ana, Orange County, CALIFORNIA. This whitefly has yet to be found in commercial citrus groves in California. Summer populations of WHITEFLIES (*Dialeurodes* spp.) were heavier than usual on citrus in FLORIDA. Honeydew from above average populations of whiteflies, as well as black and green scales, resulted in an above normal sooty mold problem.

CITRUS THRIPS (*Scirtothrips citri*) was damaging and spotty on citrus in CALIFORNIA.

SMALL FRUIT

STRAWBERRY WEEVIL (*Anthonomus signatus*) has become an increasing problem for strawberry producers in MICHIGAN since the removal of hydrocarbons for control. No substitute control has yet been found. Crop losses for strawberries in the State for 1972 ranged from 60-75 percent in the southern area to 95 percent in several Manistee County plantations.

WESTERN GRAPELEAF SKELETONIZER (*Harrisina brillians*) adults appeared 7-10 days earlier than usual in NEVADA. Damage to grapes in southwestern Clark County was heavy.

TWOSPOTTED SPIDER MITE (*Tetranychus urticae*) populations increased gradually on strawberries from January through June in FLORIDA. By late spring, heavy counts of 50-100 per leaf were noted. Severe foliar damage was evident on strawberries in Manatee and Hillsborough Counties.

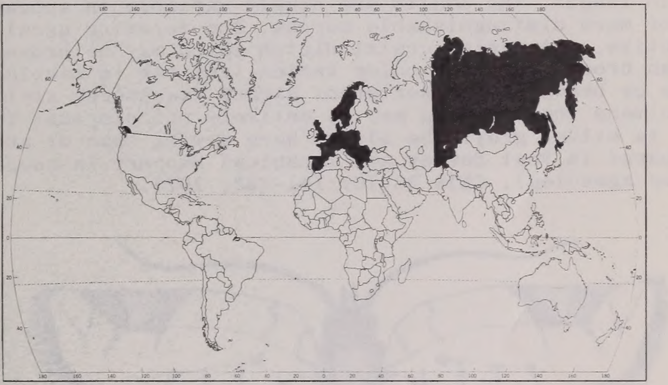
All stages of EUROPEAN RED MITE (*Panonychus ulmi*) were present on Concord grapes in North East and Harborcreek Townships of Erie County, PENNSYLVANIA, during August and September. When populations peaked in mid-August, counts ranged 28-212 (average 78) per leaf, and in some vineyards up to 90+ percent of the foliage was bronzed.

STRAWBERRY TORTRIX (Acleris comariana (Zeller))

Economic Importance - This moth is primarily a pest of strawberries. The larvae first feed on the leaves but the worst damage occurs when they move to the developing flowers, bore through the calyx and feed on the stamens and carpels. The damaged flowers will then produce only distorted fruit if any at all. This species has severely injured strawberries throughout much of Europe. Yields have been reduced up to 75 percent in England. It also causes considerable damage to azaleas in Belgium and has been recorded as feeding on roses in many areas.

Hosts - The larvae of this tortricid feed mainly on plants of the family Rosaceae, including species of Fragaria, Rosa, Rubus, and Potentilla. The main wild host plant is P. palustris, the marsh cinquefoil, and as a result the moth is more common as a pest in England in low lying areas that were once marshland. Other occasional hosts are blueberry, willow, and azalea.

Distribution - Middle and northern Europe, the Balkans, eastern U.S.S.R., Japan (Hokkaido), and British Columbia, Canada.



General Distribution of Strawberry Tortrix

Life History and Habits - The biology as recorded in England is as follows: This species overwinters in the egg stage. The eggs begin to hatch in late April or early May. As soon as they hatch, the larvae begin to feed on young, folded leaves, making holes through the successive layers. The larvae are sheltered by the folds of the fanlike leaves and are not usually visible. The leaves are bound together by webs which the larvae spin while feeding and this is a good indication of the presence of the pest. Later they move to the unopened flowers, bore through the calyx and feed on the stamens and developing carpels. The larvae require from 4-5 weeks for development. Pupation begins around the first of June but some larvae may be present throughout the month. Before pupating the larva moves to another leaflet, rolls it, and weaves a cocoon which is much tougher than the larval web. The pupal stage lasts for 2-3 weeks. First generation adults emerge from mid-June to late July. They can be found sitting on the host and fly

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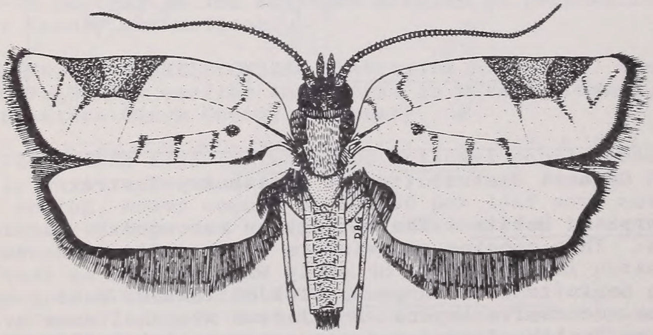
erratically when disturbed. They can fly rapidly but apparently travel only short distances, as fields adjoining an infestation may remain free of attack for up to 2 years. These adults live for about 4 weeks, laying their eggs on the backs of the stipules at the base of the plant or on the lower part of leaf stalks. Two to 3 eggs may be placed on each stipule and take about one week to hatch. Second generation larvae are present until early September, pupae until late September and adults until mid-November. The second generation larvae and pupae require about the same amount of time for development as the first generation but the adults may live for up to 8 weeks. The eggs are again deposited on the host plant but do not hatch until 5 or 6 months later.

Description - Eggs are flat and broadly oval; 0.86-0.96 mm in length by 0.64-0.69 mm in width; silvery white, highly sculptured. Young larvae (1.9-2.1 mm) have a black head and thoracic shield. The body is dirty white or yellowish, and the legs are brownish black with green bases. Beginning with the third instar the larvae become quite different in appearance. They have green or yellowish brown bodies and yellowish brown legs. The head is yellowish and semi-transparent with light brown spots on the vertex and a pair of black spots on each side. The head and body are pubescent in all larval stages. Full grown larvae are 9.5-11.0 mm in length. The adults are highly variable in appearance with 10 or more distinguishable morphs. The forewing usually has a distinctive, triangular costal blotch which may be brown, black or reddish brown. The base color varies from tan to marbled black and white or brown with a series of darker transverse striae. In some specimens the forewing may be entirely unicolorous. The hindwing is silver grey. The adults have a wing span of about 2 cm. (Prepared in Pest Survey and Technical Support in cooperation with other agencies). CEIR 23(10):141-142, 1973.



Adult of Acleris comariana

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